



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2014-0126; Directorate Identifier 2013-NM-236-AD; Amendment 39-18267; AD 2015-19-04]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for all The Boeing Company Model 757 airplanes. This AD was prompted by reports of latently failed fuel shutoff valves discovered during fuel filter replacement. This AD requires revising the maintenance or inspection program to include new airworthiness limitations. We are issuing this AD to detect and correct latent failures of the fuel shutoff valve to the engine and auxiliary power unit (APU), which could result in the inability to shut off fuel to the engine and APU and, in case of certain fires, an uncontrollable fire that could lead to structural failure.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0126; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal

holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Docket Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Rebel Nichols, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6509; fax: 425-917-6590; email: rebel.nichols@faa.gov.

**SUPPLEMENTARY INFORMATION:**

**Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all The Boeing Company Model 757 airplanes. The NPRM published in the Federal Register on March 5, 2014 (79 FR 12431). The NPRM was prompted by reports of latently failed fuel shutoff valves discovered during fuel filter replacement. The NPRM proposed to require revising the maintenance or inspection program to include new airworthiness limitations. We are issuing this AD to detect and correct latent failures of the fuel shutoff valve to the engine and APU, which could result in the inability to shut off fuel to the engine and APU and, in case of certain fires, an uncontrollable fire that could lead to structural failure.

**Record of Ex Parte Communication**

In preparation of AD actions such as NPRMs and immediately adopted rules, it is the practice of the FAA to obtain technical information and information on operational and economic impacts from design approval holders and aircraft operators. We discussed certain comments addressed in this final rule in a teleconference with Airlines for America (A4A) and other members of the aviation industry. All of the comments

discussed during this teleconference are addressed in this final rule in response to comments submitted by other commenters. A discussion of this contact can be found in the rulemaking docket at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0126.

### **Clarification of Certain Terminology**

Throughout the preamble of this final rule, commenters may have used the terms “fuel shutoff valve” and “fuel spar valve” interchangeably. Both terms refer to the same part. In our responses to comments, we have used the term “fuel shutoff valve.” The term “fuel spar valve” is more commonly used in airplane maintenance documentation and, therefore, we have used that term in figure 1 to paragraph (g) of this AD.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM (79 FR 12431, March 5, 2014) and the FAA’s response to each comment.

### **Request to Withdraw the NPRM (79 FR 12431, March 5, 2014)**

American Airlines (AA) stated that Boeing's internal review found that the issue addressed by the NPRM (79 FR 12431, March 5, 2014) is not a safety concern, and that Boeing has not recommended any interim action on this issue. In addition, AA stated that Boeing is addressing the issue in the long term with a design change to the motor-operated valve (MOV) actuator of the fuel shutoff valve. AA also noted that in a previous NPRM for Model 757 airplanes, it had submitted data showing the failure of the actuator was unlikely and that coupled with the likelihood of an erroneous indication occurring at the same time, the latent hazard was even more improbable. AA stated the same analysis applies to this NPRM. We infer that AA is requesting the NPRM be withdrawn.

We disagree with AA’s request to withdraw the NPRM (79 FR 12431, March 5, 2014). We have determined that an unsafe condition exists that warrants an

interim action until the manufacturer finishes developing a modification that will address the identified unsafe condition. Boeing did not formally comment on whether it considers this issue to be an unsafe condition. We have determined that, without the required interim actions, a significant number of flights with a fuel shutoff valve actuator that is failed latently in the open valve position will occur during the affected fleet life. With a failed fuel shutoff valve, if certain fire conditions were to occur, or if extreme engine or APU damage were to occur, or if an engine separation event were to occur during flight, the crew procedures for such an event would not stop the fuel flow to the engine strut and nacelle or APU. The continued flow of fuel could cause an uncontrolled fire or lead to a fuel exhaustion event.

The FAA regulations require all transport airplanes to be fail safe with respect to engine or APU fire events, and the risk due to severe engine or APU damage events be minimized. Therefore, we require, for each flight, sufficiently operative fire safety systems so that fires can be detected and contained, and fuel to the engine strut and nacelle or APU can be shut off in the event of an engine or APU fire or severe damage.

The FAA airworthiness standards require remotely controlled powerplant valves to provide indications that the valves are in the commanded position. These indications allow the prompt detection and correction of valve failures. We do not allow dispatch with a known inoperative fuel shutoff valve. Therefore, we are proceeding with the final rule—not because of the higher-than-typical failure rate of the particular valve actuator involved, but instead because the fuel shutoff valve actuator can fail in a manner that also defeats the required valve position indication feature. That failure can lead to a large number of flights occurring on an airplane with a fuel shutoff valve actuator failed in the open position without the operator being aware of the failure. Airworthiness limitations containing required inspections are intended to limit the number of flights following

latent failure of the fuel shutoff valve. Issuance of an AD is the appropriate method to correct the unsafe condition. We have not changed this final rule in this regard.

**Requests to Revise the Proposed AD (79 FR 12431, March 5, 2014) to Limit the Applicability Specified in Certain Figures**

DHL and United Airlines (UAL) requested that we revise the proposed AD (79 FR 12431, March 5, 2014) to limit the applicability specified in figure 1 and figure 2 to paragraph (g) of the proposed AD to airplanes with fuel shutoff valve actuators on which the identified unsafe condition exists.

DHL stated that the proposed AD (79 FR 12431, March 5, 2014) should make it clear that airworthiness limitations (AWL) numbers 28-AWL-ENG and 28-AWL-APU do not apply to airplanes that are equipped with the actuators made by supplier V35840, having part number (P/N) AV31-1 (Boeing P/N S343T003-111), for the engine fuel shutoff valve and APU fuel shutoff valve. DHL stated that the deficiencies identified in the NPRM are related to potential common mode failures, which affect integral electronic circuit boards that commutate the brushless motor and control the position indicating signals on some actuators made by supplier V73760. DHL also stated that fuel shutoff valve P/N AV31-1 (Boeing P/N S343T003-111) is not susceptible to the type of deficiency described in the NPRM because this valve uses brushes and mechanical switches rather than electronic circuit boards to commutate the motor and to control position indicating signals.

UAL stated that the proposed AD (79 FR 12431, March 5, 2014) did not specify which MOV actuator part number the proposed AD applies to. UAL stated that proposed ADs were issued for Model 737NG, 757, 767, and 777 airplanes to replace the MOV actuator with P/N MA30A1001. UAL also stated there are known issues with this MOV actuator part number, and presumes that the proposed AD is for MOV actuator P/N MA30A1001.

We agree with the commenters' requests to limit the applicability specified in figure 1 and figure 2 to paragraph (g) of this AD to airplanes with the actuators on which the identified unsafe condition exists. Only two fuel shutoff valve actuator designs are

susceptible to the identified unsafe condition specified in this final rule, and it would be unnecessarily burdensome to require the inspections on airplanes that do not have any of the susceptible valves installed. We have changed the Applicability column in figure 1 and figure 2 to paragraph (g) of this AD to clarify that the limitations apply to Model 757 airplanes on which fuel shutoff valve actuator P/N MA20A2027 (Boeing P/N S343T003-56) or P/N MA30A1001 (Boeing P/N S343T003-66) is installed at the engine and APU fuel shutoff valve positions.

#### **Requests to Change the Initial Compliance Time for the Operational Check**

AA and US Airways requested that the compliance time for the initial accomplishment of the operational check be extended after accomplishing the maintenance or inspection program revision.

AA requested that the compliance time be revised to 60 days after accomplishing the maintenance or inspection program revision. AA stated that the extended time of 60 days is for publishing the new criteria, for distribution of cards and manuals/checklists, and for the initial compliance time to be taken into account. AA stated that the 7-day compliance time is not justified by the failure rates for this safety concern. AA also stated that the compliance deadline would therefore become unclear.

US Airways requested that the compliance time be extended to 7 days after the 30-day compliance time for the maintenance or inspection program revision. US Airways stated that accomplishing the initial compliance time based on completion of adding to the maintenance program would make the compliance deadline very difficult to track as making program changes is typically not a closely tracked process.

We partially agree with the commenters' requests to extend the initial compliance time for the actions specified in figure 1 to paragraph (g) of this AD. We have changed the initial compliance time for accomplishing the actions specified in figure 1 to paragraph (g) of this AD to 10 days. A compliance time of 10 days is consistent with

regulatory actions for other affected airplane models and with the initial compliance time in figure 2 to paragraph (g) of this AD. We have determined that the initial compliance time for the check represents an appropriate time in which the required actions can be performed in a timely manner within the affected fleet, while still maintaining an adequate level of safety.

In developing an appropriate compliance time, we considered the safety implications, parts availability, and normal maintenance schedules for timely accomplishment of the operational checks. The manufacturer does not expect a large number of latently failed fuel shutoff valve actuators to be discovered. Existing parts stores are expected to be sufficient, and parts can be repositioned in time to support the initial checks. However, under the provisions of paragraph (i)(1) of this AD, we might consider requests for adjustments to the compliance time if data are submitted to substantiate that such an adjustment would provide an acceptable level of safety.

#### **Request to Change Compliance Time Intervals to Flight Cycles**

US Airways requested that the compliance time intervals be changed to specify flight cycles. US Airways stated that it has heard of no evidence suggesting the subject condition is a function of time and believes the condition would likely only occur either at engine or APU start or shutdown. US Airways also stated that it and other operators utilize its airplanes on long-haul trips that span many time zones. US Airways stated that, according to a report from the airplane manufacturer during the fourth quarter of 2013, 68 percent of the operators had a daily utilization rate of 3.3 flight cycles, and 95.4 percent had a daily utilization rate of 4.7 flight cycles.

We disagree with the commenter's request. While the failure of the fuel shutoff valve is likely associated with the cycling of the valve, the purpose of the inspections is to minimize the exposure to flights that are initiated with a fuel shutoff valve actuator that is latently failed in the open position. Operators may request approval of an AMOC in



accordance with the provisions specified in paragraph (i)(1) of this AD to change the interval to a cycle-based interval, provided it includes at least one check each day for the engine fuel shutoff valves and that the data substantiate that the request would provide an acceptable level of safety. We have not changed this AD in this regard.

### **Requests to Extend the Repetitive Inspection Interval for the Engine Fuel Shutoff Valves**

AA and UAL requested that the daily repetitive inspection interval for the engine fuel spar valve be extended.

AA requested that we add a choice to the proposed AD (79 FR 12431, March 5, 2014) to allow monitoring the disagreement light in combination with checking the actuator itself every 100 flight hours or 50 flight cycles, whichever occurs later. AA stated that this means to check the indication and physically check the closure of the engine and APU fuel spar valve at 100 flight hours or 50 flight cycles, whichever occurs later, as an alternative maintenance task. AA stated that Model 767-400 series airplanes identified in the NPRM having Directorate Identifier 2013-NM-237-AD (79 FR 12420, March 5, 2014) are allowed 10 days to inspect the spar valve actuator arm when it is fully closed and commanded closed. AA stated that 10 days equates closely to 100 flight hours/50 flight cycles. AA also stated that Model 757 and 767 airplanes have the same actuator valve and indication, except that Model 767-400 series airplanes do not have a disagreement light.

UAL requested that we extend the daily interval for AWL number 28-AWL-ENG to 10 days. UAL stated that Model 757-200 and -300 series airplanes and Model 767-400 series airplanes use the same MOV actuator. UAL stated that the interval for Model 757-200 and -300 series airplanes is daily while the Model 767-400 series airplanes is 10 days.

We disagree with the commenters' requests. For the engine fuel shutoff valve, an interval increase from daily to every 10 days, or to the later of 100 flight hours or 50 flight cycles, would result in at least 10 times as many flights at risk of an uncontrollable engine fire. The daily check has been deemed practical because in practice it likely means the flightcrew will need to watch a light just above the FUEL CONTROL switch as they start or shut down the engine. As AA stated, Model 767-400ER series airplanes do not have the disagreement light, so the inspection is more complex. As a result, we determined it is not practical to require this inspection on a daily basis on Model 767-400ER airplanes. We have not changed the inspection interval for Model 757 airplanes addressed in this AD.

#### **Request for Operational Check Relief**

AA requested that any recurring interval include only the days or flight cycles when the airplane is in revenue service, or when an APU is in operational status. AA stated that the proposed AD (79 FR 12431, March 5, 2014) does not account for airplanes in routine maintenance or in an out-of-service condition. AA also proposed that a provision for the APU on the minimum equipment list (MEL) be included in the proposed AD. AA stated that once an APU is returned to service from the MEL, the "10 day or 100 flight hours/50 cycles whichever occurs later" interval would be restarted. AA stated that any task interval in the proposed AD should have the mechanism to exclude the elapsed time when the aircraft or APU is non-operational, since the latent failure finding task is not accumulating time toward a next potential latent failure.

We partially agree with the commenter's request. We agree to limit operational checks to days when the airplane is in revenue service or when an APU is in operational status because it would be unnecessarily burdensome to require the inspections on airplanes that are not in operation. We have added a note in the Interval column of figure 1 and figure 2 to paragraph (g) of this AD indicating that the operational check for the

engine and APU is not required on days when the airplane is not used in revenue service. We have revised figure 1 to paragraph (g) of this AD to include a note stating that the check must be done before further flight once the airplane is returned to revenue service. We have also revised figure 2 to paragraph (g) of this AD to state that the check must be done before further flight with an operational APU if it has been 10 or more calendar days since the last check.

However, we disagree with restarting the 10-day interval once an APU is returned to service. The interval for the operational check of the APU fuel shutoff valve should not be extended simply because the APU was out of service for a time. It is likely that this check will be done as a matter of course whenever an APU is returned to service.

#### **Request to Add Requirement to Provide Electrical Power before the Operational Check**

UAL requested that we add a requirement to the proposed AD (79 FR 12431, March 5, 2014) to provide electrical power before performing the operational check required by figure 1 and figure 2 to paragraph (g) of the proposed AD. UAL stated that electrical power is required to perform the check and other maintenance might be underway, which could deactivate required circuits.

We agree with the commenter's request because electrical power is required. In item C.1. of figure 1 and item A.2. of figure 2 to paragraph (g) of this AD, we have added an instruction to supply electrical power to the airplane using standard practices when performing the operational check.

#### **Request to Allow Flightcrew to Perform Certain AD Requirement Without Principal Operations Inspector (POI) Approval**

Allegiant Air requested the proposed verbiage that states "(unless checked by the flightcrew in a manner approved by the principle [sic] operations inspector)" be revised

to “the operational check can be performed either as a maintenance action or as a flightcrew action.” Allegiant Air stated that the proposed AD (79 FR 12431, March 5, 2014) allows either the flightcrew or maintenance crew to perform the operational check. Allegiant Air stated that section 91.403(c) of the Federal Aviation Regulations (14 CFR 91.403(c)) requires the affected operator to accomplish the test provided by the airworthiness limitation. Allegiant Air also stated that FAA Master Minimum Equipment List (MMEL), Policy Letter 25, Revision 16, dated April 2, 2010 (PL-25 is designated as MMEL Global Change GC-164) ([http://fsims.faa.gov/wdocs/policy%20letters/pl-025\\_r16.htm](http://fsims.faa.gov/wdocs/policy%20letters/pl-025_r16.htm)) provides allowance for “other personnel” to be qualified and authorized to perform certain functions that do not require the use of tools or test equipment. Allegiant Air stated that this change would eliminate the need for a second approval process (via the POI), while providing an equivalent level of safety.

We partially agree with the commenter’s request. We agree that the AWL allows either the flightcrew or maintenance crew to perform the operational check. We consider it to be very important that the expectations as to what must be done to check the operation of the fuel shutoff valve, as defined in figures 1 and 2 to paragraph (g) of this AD, be well understood by all parties, and yet we want to provide the maximum flexibility to operators.

If an operator chooses to have the flightcrew accomplish the check, the POI is in the best position to make sure this check is done properly. However, it is also acceptable for an operator to choose to accomplish the check as a maintenance action and record compliance as specified in section 43.11(a) of the Federal Aviation Regulations (14 CFR 43.11(a)) without POI involvement. In addition, affected operators may apply for approval of an AMOC in accordance with the provisions specified in paragraph (i)(1) of this AD by submitting data substantiating that the request would provide an acceptable level of safety. We have not changed the AD in this regard.

### **Request for Clarification Regarding the Use of the MEL**

US Airways requested clarification on the use of the MEL. US Airways asked if operators may still apply the MEL and be in compliance with the requirements of the proposed AD (79 FR 12431, March 5, 2014) if the SPAR VALVE light becomes inoperative. US Airways stated the maintenance action specified by the MEL should meet the intent of the proposed AD (79 FR 12431, March 5, 2014). US Airways stated that the operational checks in figure 1 to paragraph (g) of the proposed AD are predicated on the SPAR VALVE light being operative. US Airways also stated that MEL 28-40-2 of the FAA Boeing B757 Master Minimum Equipment List (MMEL), Revision 30a, dated June 9, 2014, provides relief should the indication be inoperative, and the proposed AD requirements should provide the same relief.

We disagree with providing MEL relief for an inoperative fuel shutoff valve indication because MEL relief could potentially allow the fuel shutoff valve to be inoperative for up to 10 days of revenue operation. However, we do agree to provide flexibility in regard to verification that the fuel shutoff valve actuator is operational. In figure 1 to paragraph (g) of this AD, we have added item D., “Perform an Inspection to the Fuel Spar Valve MOV Actuator Position,” to verify the valve is closing, which can be used when the fuel shutoff valve indication does not function properly.

### **Request to Clarify Recording Requirements**

US Airways requested that we provide a more complete explanation of the requirements regarding the documentation of accomplishment of the requirements of the proposed AD (79 FR 12431, March 5, 2014). US Airways stated that typically, AD-mandated actions require documentation of accomplishment. US Airways stated that it should be made clear whether logbook entries would be required should the flightcrew perform the required actions in an approved manner, such as part of a procedure checklist.

We agree that clarification is necessary. This AD requires including the information in figure 1 and figure 2 of paragraph (g) of the AD in the maintenance or inspection program. However, the AD does not require accomplishing the actions specified in figure 1 and figure 2 of paragraph (g) of the AD. The actions specified in the figures in this AD are done, and remain enforceable, as part of the airworthiness limitations of the Instructions for Continued Airworthiness. Section 43.11(a) of the Federal Aviation Regulations (14 CFR 43.11(a)) requires maintenance record entries for maintenance actions such as the required checks. If an operator elects to have a flightcrew member do the check in accordance with the applicable airworthiness limitation, that same action would be considered an operational task (not maintenance), and therefore 14 CFR 43.11(a) would not apply. In that case, operators should follow their normal processes for operational activities, including necessary POI involvement. We have not changed this AD in this regard.

#### **Request to Clarify Requirements for Certain Disagreement Lights**

UAL requested that we clarify certain requirements of the proposed AD (79 FR 12431, March 5, 2014). UAL stated that, in figure 1 to paragraph (g) of the proposed AD, item C.5.a. and item C.6.a. (item C.6.a. and item C.7.a., respectively, in this AD) instruct to move the left and right FUEL CONTROL switches, respectively, to the RUN position, but do not instruct to monitor the left and right SPAR VALVE disagreement lights, unlike item C.5.c and item C.6.c. of the proposed AD. UAL stated that it presumes it is not required to verify the left and right SPAR VALVE disagreement lights when the left and right FUEL CONTROL switches are moved to the RUN position.

We agree to provide clarification. It is not required to verify the left and right SPAR VALVE disagreement lights when the left and right FUEL CONTROL switches are moved to the RUN position during that portion of the operational check. We have not changed this AD in this regard.

**Explanation of Error in the Published Version of the NPRM (79 FR 12431, March 5, 2014)**

The model designation for The Boeing Company Model 757 airplanes is missing from the SUMMARY section of the NPRM (79 FR 12431, March 5, 2014). This information has been added to this final rule.

**Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously, and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (79 FR 12431, March 5, 2014) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (79 FR 12431, March 5, 2014).

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

**Interim Action**

We consider this AD interim action. The manufacturer is currently developing a modification that will address the unsafe condition identified in this AD. Once this modification is developed, approved, and available, we might consider additional rulemaking.

**Costs of Compliance**

We estimate that this AD affects 590 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

**Estimated costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Incorporating Airworthiness Limitation	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$50,150

**Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

**Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a “significant regulatory action” under Executive Order 12866,



- (2) Is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

#### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**2015-19-04 The Boeing Company:** Amendment 39-18267; Docket No. FAA-2014-0126; Directorate Identifier 2013-NM-236-AD.

#### **(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

None.

#### **(c) Applicability**

This AD applies to all The Boeing Company Model 757-200, -200PF, -200CB, and -300 series airplanes, certificated in any category.

**(d) Subject**

Air Transport Association (ATA) of America Code 28, Fuel.

**(e) Unsafe Condition**

This AD was prompted by reports of latently failed fuel shutoff valves discovered during fuel filter replacement. We are issuing this AD to detect and correct latent failures of the fuel shutoff valve to the engine and auxiliary power unit (APU), which could result in the inability to shut off fuel to the engine and APU and, in case of certain fires, an uncontrollable fire that could lead to structural failure.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Revision of Maintenance or Inspection Program**

Within 30 days after the effective date of this AD, revise the maintenance or inspection program, as applicable, to add airworthiness limitations Nos. 28-AWL-ENG and 28-AWL-APU, by incorporating the information specified in figure 1 and figure 2 to paragraph (g) of this AD into the Airworthiness Limitations Section of the Instructions for Continued Airworthiness. The initial compliance time for accomplishing the actions specified in figure 1 and figure 2 to paragraph (g) of this AD is within 10 days after accomplishing the maintenance or inspection program revision required by this paragraph.

**Figure 1 to Paragraph (g) of this AD: Engine Fuel Shutoff Valve (Fuel Spar Valve) Position Indication Operational Check**

AWL Number	Task	Interval	Applicability	Description
28-AWL-ENG	ALI	<p>DAILY</p> <p>INTERVAL NOTE: Not required on days when the airplane is not used in revenue service. The check must be done before further flight once the airplane is returned to revenue service.</p>	<p>ALL</p> <p>APPLICABILITY NOTE: Only applies to airplanes with an MA20A2027 (S343T003-56) or MA30A1001 (S343T003-66) actuator installed at the engine fuel spar valve position.</p>	<p>Engine Fuel Shutoff Valve (Fuel Spar Valve) Position Indication Operational Check</p> <p>Concern: The fuel spar valve actuator design can result in airplanes operating with a failed fuel spar valve actuator that is not reported. A latently failed fuel spar valve actuator could prevent fuel shutoff to an engine. In the event of certain engine fires, the potential exists for an engine fire to be uncontrollable.</p> <p>Perform one of the following checks/inspection of the fuel spar valve position (unless checked by the flightcrew in a manner approved by the principal operations inspector).</p> <p>A. Operational check during engine shutdown</p> <ol style="list-style-type: none"> <li>1. Do an operational check of the left engine fuel spar valve actuator. <ol style="list-style-type: none"> <li>a. As the L FUEL CONTROL switch on the quadrant control stand is moved to the CUTOFF position, verify the left SPAR VALVE disagreement light on the quadrant control stand illuminates and then goes off.</li> <li>b. If the test fails (light fails to illuminate), before further flight, repair faults as required (refer to Boeing AMM 28-22-11).</li> </ol> </li> <li>2. Do an operational check of the right engine fuel spar valve actuator. <ol style="list-style-type: none"> <li>a. As the R FUEL CONTROL switch on the quadrant control stand is moved to the CUTOFF position, verify the right SPAR VALVE disagreement light on the quadrant control stand illuminates and then goes off.</li> <li>b. If the test fails (light fails to illuminate), before further flight, repair faults as required (refer to Boeing AMM 28-22-11).</li> </ol> </li> </ol> <p>B. Operational check during engine start</p> <ol style="list-style-type: none"> <li>1. Do an operational check of the left engine fuel spar valve actuator.</li> </ol>

AWL Number	Task	Interval	Applicability	Description
				<p>a. As the L FUEL CONTROL switch on the quadrant control stand is moved to the RUN position, verify the left SPAR VALVE disagreement light on the quadrant control stand illuminates and then goes off.</p> <p>b. If the test fails (light fails to illuminate), before further flight, repair faults as required (refer to Boeing AMM 28-22-11).</p> <p>2. Do an operational check of the right engine fuel spar valve actuator.</p> <p>a. As the R FUEL CONTROL switch on the quadrant control stand is moved to the RUN position, verify the right SPAR VALVE disagreement light on the quadrant control stand illuminates and then goes off.</p> <p>b. If the test fails (light fails to illuminate), before further flight, repair faults as required (refer to Boeing AMM 28-22-11).</p> <p>C. Operational check without engine operation</p> <p>1. Supply electrical power to the airplane using standard practices.</p> <p>2. Make sure all fuel pump switches on the Overhead Panel are in the OFF position.</p> <p>3. If the APU is running, open and collar the L FWD FUEL BOOST PUMP (C00372) circuit breaker on the Main Power Distribution Panel.</p> <p>4. Make sure LEFT and RIGHT ENG FIRE switches on the Aft Aisle Stand are in the NORMAL (IN) position.</p> <p>5. Make sure L and R Engine Start Selector Switches on the Overhead Panel are in the OFF position.</p> <p>6. Do an operational check of the left engine fuel spar valve actuator.</p> <p>a. Move L FUEL CONTROL switch on the quadrant control stand to the RUN position and wait approximately 10 seconds.</p> <p>NOTE: It is normal under this test condition for the ENG VALVE disagreement light on the quadrant control stand to stay illuminated.</p>

AWL Number	Task	Interval	Applicability	Description
				<p>b. Move L FUEL CONTROL switch on the quadrant control stand to the CUTOFF position.</p> <p>c. Verify the left SPAR VALVE disagreement light on the quadrant control stand illuminates and then goes off.</p> <p>d. If the test fails (light fails to illuminate), before further flight, repair faults as required (refer to Boeing AMM 28-22-11).</p> <p>7. Do an operational check of the right engine fuel spar valve actuator.</p> <p>a. Move R FUEL CONTROL switch on the quadrant control stand to the RUN position and wait approximately 10 seconds.</p> <p>NOTE: It is normal under this test condition for the ENG VALVE disagreement light on the quadrant control stand to stay illuminated.</p> <p>b. Move R FUEL CONTROL switch on the quadrant control stand to the CUTOFF position.</p> <p>c. Verify the right SPAR VALVE disagreement light on the quadrant control stand illuminates and then goes off.</p> <p>d. If the test fails (light fails to illuminate), before further flight, repair faults as required (refer to Boeing AMM 28-22-11).</p> <p>8. If the L FWD FUEL BOOST PUMP circuit breaker was collared in step 3, remove collar and close.</p> <p>D. Perform an inspection of the fuel spar valve actuator position</p> <p>NOTE: This inspection may be most useful whenever the SPAR VALVE light does not function properly.</p> <p>1. Make sure the L FUEL CONTROL switch on the quadrant control stand is in the CUTOFF position.</p> <p>NOTE: It is not necessary to cycle the FUEL CONTROL switch to do this inspection.</p>

AWL Number	Task	Interval	Applicability	Description
				<p>2. Inspect the left engine fuel spar valve actuator located in the left rear spar.</p> <p>NOTE: Access is through access panel 551EBX.</p> <p>a. Verify the manual override handle on the engine fuel spar valve actuator is in the CLOSED position.</p> <p>b. Repair or replace any actuator that is not in the CLOSED position (refer to Boeing AMM 28-22-11).</p> <p>3. Make sure the R FUEL CONTROL switch on the quadrant control stand is in the CUTOFF position.</p> <p>NOTE: It is not necessary to cycle the FUEL CONTROL switch to do this inspection.</p> <p>4. Inspect the right engine fuel spar valve actuator located in the right rear spar.</p> <p>NOTE: Access is through access panel 651EBX.</p> <p>a. Verify the manual override handle on the engine fuel spar valve actuator is in the CLOSED position.</p> <p>b. Repair or replace any actuator that is not in the CLOSED position (refer to Boeing AMM 28-22-11).</p>

**Figure 2 to Paragraph (g) of this AD: Auxiliary Power Unit (APU) Fuel Shutoff Valve Position Indication Operational Check**

AWL Number	Task	Interval	Applicability	Description
28-AWL-APU	ALI	10 DAYS  INTERVAL NOTE: Not required on days when the airplane is not used in revenue service.  Must be done before further flight with an operational APU if it has been 10 or more calendar days since last check.	ALL  APPLICABILITY NOTE: Only applies to airplanes with an MA20A2027 (S343T003-56) or MA30A1001 (S343T003-66) actuator installed at the APU fuel shutoff valve position.	<p>APU Fuel Shutoff Valve Position Indication Operational Check</p> <p>Concern: The APU fuel shutoff valve actuator design can result in airplanes operating with a failed APU fuel shutoff valve actuator that is not reported. A latently failed APU fuel shutoff valve actuator could prevent fuel shutoff to the APU. In the event of certain APU fires, the potential exists for an APU fire to be uncontrollable.</p> <p>Perform the operational check of the APU fuel shutoff valve position indication (unless checked by the flightcrew in a manner approved by the principal operations inspector).</p> <p>A. Do an operational check of the APU fuel shutoff valve position indication.</p> <ol style="list-style-type: none"> <li>1. If the APU is running, unload and shut down the APU using standard practices.</li> <li>2. Supply electrical power to the airplane using standard practices.</li> <li>3. Make sure the APU FIRE switch on the Aft Aisle Stand is in the NORMAL (IN) position.</li> <li>4. Make sure there is at least 700 lbs (300 kgs) of fuel in the Left Main Tank.</li> <li>5. Move APU Selector switch on the Overhead Panel to the ON position and wait approximately 10 seconds.</li> <li>6. Move APU Selector switch on the Overhead Panel to the OFF position.</li> <li>7. Verify the APU FAULT light on the Overhead Panel illuminates and then goes off.</li> <li>8. If the test fails (light fails to illuminate), before further flight requiring APU availability, repair faults as required (refer to Boeing AMM 28-25-11).</li> </ol> <p>NOTE: Dispatch may be permitted per MMEL 28-25-2 if APU is not required for flight.</p>

**(h) No Alternative Actions or Intervals**

After accomplishment of the maintenance or inspection program revision required by paragraph (g) of this AD, no alternative actions (e.g., inspections) or intervals may be used unless the actions or intervals are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (i)(1) of this AD.

**(i) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle Aircraft Certification Office (ACO) FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in paragraph (j) of this AD. Information may be emailed to:

9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(j) Related Information**

For more information about this AD, contact Rebel Nichols, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6509; fax: 425-917-6590; email: rebel.nichols@faa.gov.



**(k) Material Incorporated by Reference**

None.

Issued in Renton, Washington, on September 7, 2015.

Jeffrey E. Duven,  
Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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